Amendments to the Drawings

The attached sheet(s) of drawings includes changes to Fig(s) 5. The sheet(s), which includes

Fig(s) 5, replaces the original sheet(s) including Fig(s) 5.

Attachment: Replacement Sheet(s)

REMARKS

Claims 1-26 are pending in the application. Claims 1, 9 and 18 are independent. Claims 1-26 stand rejected.

Drawings

The drawings are objected to because of minor informalities: in Fig. 5, all arrows should be added and all dashed lines should be made continuous.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are being submitted herewith in reply to the Office action.

Claim Rejections - 35 USC § 102

Claims 9 and 18 stand rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 7,150,011 to Ha et al. (hereinafter "Ha").

The examiner maintains that Ha discloses:

> a method for software interaction with hardware, comprising:
>
> ....
>
> compiling the application program and the runtime program
> into a single executable program for execution on a target
> computer system (e.g., col.6: 48-56; FIG. 2, col.5: 52-57).

Action, pp. 5-6. Applicants respectfully disagree. The cited portion of Ha teaches the use of client specific bytecodes that are executed, but says nothing about compiling application program bytecodes and runtime programs into a single executable. In fact, Ha teaches away from the current invention, for example, in column 8, l. 60- col. 9, l. 8 wherein it indicates that bytecodes are demultiplexed into hardware specific and software specific bytecodes. Where the software bytecodes are interpreted by the software virtual machine. By contrast, the present invention claims combining application program in an intermediate language with a runtime in a intermediate language and compiling the combination into a single executable.

Accordingly, Applicants request reconsideration and withdrawal of the rejection of claim 1 over Ha.

Regarding claim 18, the examiner applied the same analysis as claim 9. As such, Applicants maintain that the preceding arguments apply equally to claim 18 and request reconsideration and withdrawal of the rejection of claim 18 over Ha.

Claim Rejections - 35 USC § 103

Claims 1-2, 6-10, 15-19, and 24-26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over APA (art of record, Background of the Invention, pages 1-2) in view of Oldman (art of record, US Patent No. 6,769,115) and further in view of Sato (art of record, "Fast Compiler Re-Targeting to Different Platforms by Translating at Intermediate Code Level" to Sato, IDS document filed January 4, 2002).

The examiner has indicated, among other things, that claim 1 APA dislcoses:

> a plurality of runtime instructions, said instructions being in an intermediate language readable by an intermediate language compiler (e.g., page 1:21-26);

Applicants respectfully disagree with the characterization of the APA by the examiner. The cited portion of the specification says:

> When APIs cause hardware resources to be utilized, the operating system calls the driver through the DDI to make use of those resources. Due to the differences between the software abstractions provided by APIs and the underlying hardware, this translation from API calls to DDI calls can entail significant amounts of logic and code. In the context of this specification, the software between the application-level API and the driver-level DDI is known collectively as the "runtime."

Notably, there is nothing in this portion of the specification that indicates that the runtime is in an intermediate language. On the contrary, this portion describes how the runtime instructions are designed to deal with the specific hardware and as such would not generally be considered portable. As such, it teaches away from providing a runtime in an intermediate language which is generally considered to be portable.

The examiner further indicates that the APA does not explicitly disclose *"compiling the application instructions and the runtime instructions into a combined set of instructions executable by the processor for interacting with the selected driver."* For that propositioin, the examiner cites to Oldman. The examiner contends that Olman discloses:

> compiling a set of application instructions and a set of runtime instructions into instructions executable by the processor for interacting with the selected driver (e.g., FIG. 3, compiling Application Source 103 and Adi Headers 105 and Libraries 106 into Application Binary 107(a-c), and related text in col.6: 50 - col.7: 9; and

> FIG. 8, compiling Application Source 103, OS Headers and Libraries 303(a-c), Adi Headers and Libraries 105-106 to Application Binary 113(a-c), col. 7: 19-45). ...

> As set forth above, Oldman explicitly discloses Application Binary 113(a-c) (FIGs. 3 and 8) as <u>a combined set of instructions</u> (recited in claim 1) and as <u>a single executable program</u> (recited in claims 9 and 18). Neither APA nor Oldman explicitly discloses the set of application instructions and the set of runtime instructions being in an intermediate language.

Action, pp. 7-8. As indicated above in the excerpt form the present application, runtime instructions are "the software between the application-level API and the driver-level DDI." The applicants have further amended claim 1 to make this feature of the runtime more explicit. As such the references cited by the examiner simply do not disclose, alone or in combination:

> a plurality of runtime instructions, said instructions being in an intermediate language readable by an intermediate language compiler, wherein said runtime instructions performs the translation between said application instructions and said selected driver; and

> an intermediate language compiler capable of compiling the application instructions and the runtime instructions into a combined set of instructions executable by the processor for interacting with the selected driver.

The examiner also cites Sato as using a compiler to compile source code into an intermediate language. However, as indicated above, claim elements are simply not present in the references cited by the examiner. For at least that reason, Applicants submit that claim 1 patentably defines over the cited references. Applicants respectfully request reconsideration and withdrawal of the rejection.

The examiner indicated that claims 9 and 18 are method and computer-readable medium versions, which recites the same limitations as those of the computer system claim 1, wherein all claimed limitations have been addressed and/or set forth above. Accordingly,

Applicants submit that the arguments above also address the rejection of claims 9 and 18 and similarly request reconsideration and withdrawal of the rejection.

Inasmuch as claims 3-8, 10-17 and 19-26.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,615,167 to Devins et al. (hereinafter "Devins") in view of Sato.

The examiner maintains that Devins teaches all of the elements of claim 1 expcet that Devins does not explicitly disclose:

> said instructions being in an intermediate language readable by
> an intermediate language compiler; and an intermediate
> language compiler capable of compiling the application
> instructions and the runtime instructions into a combined set of
> instructions executable by the processor for interacting with the
> selected drive.

For the purportedly missing teaching of Devins, the examiner cites to Sato which he maintains discloses:

> and an intermediate language compiler capable of compiling
> the application instructions and the runtime instructions into a
> combined set of instructions executable by the processor for
> interacting with the selected drive (e.g., FIG. 1, related text in
> page 924, left column: 39-54, MIPS compiler capable of
> compiling UCODE; wherein IICODE is the intermediate
> language produced from a C program, page 924, right column:
> 23-26).

Action p. 13. Applicants respectfully disagree. The cited portion of Sato merely teaches that intermediate language compiler are capable of compiling instructions for a variety of different target systems. However, the present invention, as amended in the attached claim, defines a method and system where runtime instructions are defined which perform the translation between application instructions and a selected driver or driver program. Further, the method and system of the present application executes an intermediate language compiler, where the application instructions and the runtime instructions are compiled into a single program executable by a processor of the computer system for interacting with the selected driver. Even though one might argue that Sato describes an intermediate language compiler, Sato does not suggest runtime instructions in an intermediate language. In addition, since Sato accentuates the advantage of portability, Sato appears not to

render obvious to a skilled person to compile the application instructions and runtime instructions both being in an intermediate language into a single program executable. Such a system would not be portable.

As such we disagree Devins and Sato would have been combined by a person of ordinary skill in the art in a manner that renders the claim obvious. Rather, this appears to be the solution provided by the present invention instead of the knowledge of a person of ordinary skill. Since portability is a main issue of Sato, the person of ordinary skill in the art would presumably keep the applications and drivers separate to achieve this goal.

Reconsideration and withdrawal of the rejection is respectfully requested.

CONCLUSION

In the view of the foregoing amendments and remarks, Applicants respectfully submit that the present application is in condition for allowance. Reconsideration of the application and en early Notice of Allowance are respectfully requested. In the event that the Examiner cannot allow the application for any reason, the Examiner is encouraged to contact Applicants' representative.

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